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DIGITALLY VERIFIED RECORD

JEHOVAHKING ENGINEERING CONSULTANTS PVT. LTD.

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CIN : U74900TN2010PTC074177

STABILITY CERTIFICATE

(To be furnished while filing application for registration of building)

The detailed engineering and structure design of the proposed building comprising of construction of High Rise Residential Group development buildings with 2Blocks with Block A: Stilt+9 floors with 81 dwelling units and Block B:Stilt +2 floors with Stilt floor(Parking) + 1st floor(Yoga room, Indoor games)+2nd floor part (GYM and Open Swimming Pool) at S.No 67/1A1B (Old S.NO 67/1A1), T.S.NO 16/1, Block No.10 abutting Ennore Express way, Thiruvottiyur village, Thiruvottiyur Taluk within the limits of Greater Chennai Corporation. has been done by us based on the report of geotechnical investigation (soil test) done by MARS Synergy Geotech Pvt Ltd., Report No. MSGTPL/SI-6542/25-26 Dated June-2025 and considering the functional requirement of the building.

2. It is certified that among other factors, the proposed building has been designed to resist earthquake. We have checked various parameters and found that the proposed building would be safe.

3. I/We further certify that:

(i) The minimum grade of concrete is ....M25.....

(ii) The design and analysis has been done using the code of practice for plain and reinforced concrete as per IS 456, design loads as per IS Codes No...875 .....and design of earthquake resistant structure as per IS Code No...1893.....

4. The building will be safe and sound when used for the purpose for which it is designed.

(S.Dhiliparajan, M.E)
Stamp and Signature

S.DHILIPARAJAN, M.E.,
CMDA Regn. No. SE/GR-I/19/02/11
GCC Regn. No. RSE100042024
Jehovahking Engineering Consultants Pvt Ltd.,
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Encl.: Structural Design Calculation

THE PLANNING PERMISSION APPLICATION FOR THE PROPOSED CONSTRUCTION OF HIGH RISE RESIDENTIAL GROUP DEVELOPEMENT BUILDING WITH 2 BLOCKS WITH BLOCK A: STILT + 9 FLOORS WITH 81 DWELLING UNITS & BLOCK B: STILT + 2 FLOORS WITH STILT FLOOR(PARKING)+ 1ST FLOOR (YOGA ROOM, INDOOR GAMES)+2ND FLOOR PART (GYM AND OPEN SWIMMIMG POOL) AT SURVEY NO 67/1A1BPT(OLD S. NO. 67/1A1), T.S NO. 16/1, BLOCK NO.10 ABUTTING ENNORE EXPRESS WAY, THIRUVOTTIYUR VILLAGE, THIRUVOTTIYUR TALUK, WITHIN THE LIMITS OF GREATERCHENNAI CORPORATION.

STRUCTURAL DESIGN CALCULATIONS

ARECHITECT: **ESKAY DESIGN, CHENNAI.**

CLIENT: **KG BUILDERS, CHENNAI.**

STRUCTURAL CONSULTANTS: **JEHOVAHKING ENGINEERING CONSULTANTS PVT.LTD PORUR, CHENNAI.**

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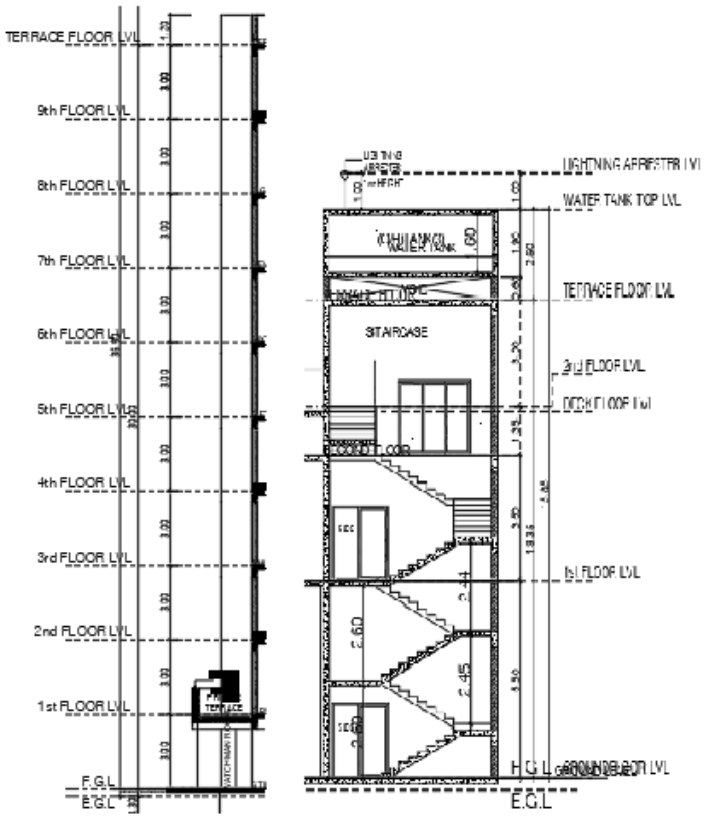
1. INTRODUCTION:

The proposed building has two blocks named Block-A and Block-B. **Block-A** is Multi storied building consists of Stilt + 9 upper floors. Stilt Floor is used for Vehicle parking. Typical floors are used for Residential purpose. **Block-B** consists of Stilt + 2 Floors. Stilt Floor is used for Vehicle parking. First floor used for multipurpose hall facilities and Second floor podium area accommodates Swimming Pool.

The Structure is designed as a Reinforced concrete framed structure supported on RCC Pile Foundation. The columns, beams and slabs are considered and designed as reinforced concrete members.

Building size -		**Block-A**		**Block-B**
Length (X-direction)	–	60.3m	-	16.2m
Width (Y-direction)	–	21.5m	-	16.0m
Height				
Stilt floor	–	3.0m	-	5.5m
Typical floor	–	3.0m	-	3.5m

Block-A **Block-B**



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2. GRADE OF MATERIALS:

i) Concrete

Characteristic concrete strength (concrete grade) for the project shall be based on exposure condition and forces to be supported by specified structural elements. The minimum cement content and maximum water–cement ratio shall be as per IS code 456:2000. The minimum 28-day compressive strength of concrete for specified structural elements shall be as follows

Grade of Concrete for Individual Structural elements

M40 grade concrete for Columns & RC Shear walls and M30 grade for all other Reinforced concrete elements of the structure.

Concrete Properties

Young's Modulus of Elasticity of Concrete	$5000\sqrt{fck}$
Poisson Ratio's Ratio ν =	0.2

ii) Reinforcement

Reinforcement steel confirming to IS 1786-2008 for grades Fe550D and Fe500D and IS 432-1982 for grade Fe415 is used, The characteristic tensile properties of steel in design shall be as follows.

Reinforcement Characteristic yield strength fy (N/mm^2)	Fe500D / Fe550D
Young's Modulus E (kN/mm^2)	$200kN/mm^2$
Poisson's ratio	0.3
Coefficient of Thermal expansion, α ($^oC^{-1}$)	$12x10^{-6}$
Density	$78.5\ kN/m^3$
Diameters [in mm]: 8, 10, 12, 16, 20, 25, 32 & 40	

iii) Structural steel

All structural steel shall conform to Indian standard IS: 2062-2011.

Structural steel	Grade E=250	Grade E-350
Tensile strength	$410\ N/mm^2$	$490\ N/mm^2$
Yield stress t<20mm	$250\ N/mm^2$	$350\ N/mm^2$
Yield stress t = 20mm to 40mm	$240\ N/mm^2$	$330\ N/mm^2$
Yield stress t> 40mm	$230\ N/mm^2$	$320\ N/mm^2$
Young's Modulus (E)	$200,000\ N/mm^2$	$200,000\ N/mm^2$
Density	$78.5\ kN/m^3$	$78.5\ kN/m^3$

The Self-weights are calculated on the basis of unit weights of materials given in IS 875 (Part1) the data provided by consultant and other service consultants will be used for the specific materials.

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Materials	Unit weight kN/m^3
Steel	78.50
Plain Cement Concrete	24.00
Reinforced Cement Concrete	25.00
Soil Fill	18.00
Water	10.00
Cement Concrete screed	24.00
Brick wall	20.00
Solid block wall (Concrete)	22.00

Normal weight aggregates shall be considered for arriving at self-weight of all Concrete works.

3. DESIGN STANDARDS:

The relevant Indian Standard Codes, as given below, shall be followed for structural design:

Sl.No.	Code	Description
1.	IS-875 (Part 1) – 1987	Code of Practice for Design Loads (other than earthquake) for buildings and structures – Unit weights of buildings materials and stored material.
2.	IS-875 (Part 2) – 1987	Code of Practice for Design Loads (other than earthquake) for buildings and structures – Imposed loads.
3.	IS-875 (Part 3) – 2015	Code of Practice for Design Loads (other than earthquake) for buildings and structures – Wind loads.
4.	IS-875 (Part 4) – 1987	Code of Practice for Design Loads (other than earthquake) for buildings and structures – Snow loads.
5.	IS-875 (Part 5) – 1987	Code of Practice for Design Loads (other than earthquake) for buildings and structures – Special loads and load combinations.
6.	IS: 456 – 2000	Code of Practice for Plain and Reinforced Concrete.
7.	IS: 1786 – 2008	High Strength Deformed Steel Bars and Wires for Concrete Reinforcement - Specification.
8.	IS: 13920 – 2016	Ductile detailing of reinforced concrete structures

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		subjected to seismic forces - Code of practice
9	IS: 800 – 1984/2007	Code of Practice for General Construction in Steel.
10.	IS: 1893 (Part 1) – 2016	Criteria for Earthquake resistant design of structures.
11.	IS3370-(PART I & II)-2021	Code of Practice for Concrete structures for the storage of liquids – Reinforced concrete structures
12.	IS 2911 (Part I/sec 1) - 2010	Code of Practice for Design and construction of Pile foundation (concrete piles)

4. DESIGN DATA:

1. No. of floors = Blk-A-Stilt Floor + 9 Floors
   Blk-B-Stilt floor + 2 Floors.
2. Total height of building (Block – A & B) = 33.0m & 10.35m above ground Level respectively.
3. Pile capacity of 28m deep 600mm dia pile for Blk-A= 125 MT
   Safe bearing capacity for Block-B = 20 t/m^2 @ 2m depth
4. Density of Concrete = 25 kN/m^3
5. D.L. due to partitions = considered on the floor beams as UDL
6. D.L. due to flooring (50mm thick) = 0.05x24=1.20 kN/m^2
7. Wall Load
   (200mm thick AAC Block wall):
   Typical Floor = 3.0m-0.45m=2.55m x 0.2m x 10kN/m^3= 5.10 kN/m
   Staircase Load
   SIDL = 5.8m/2 = 2.9 x 8.7 = 25.23 KN/m
   LL = 5.8m / 2 = 2.9 x 3 = 8.7 KN/m
8. Live Load in Stairs = 3.00 kN/m^2
9. Live Load in balcony & corridors = 3.00 kN/m^2
10. Live Load in Rooms = 2.00 kN/m^2
11. Live Load in Health clubs = 3.00 kN/m^2
12. Live Load in Indoor games = 3.00 kN/m^2
13. Live Load in Parking = 2.50 kN/m^2
14. Live Load in Swimming pool deck = 3.00 kN/m^2
15. Live Load in toilets = 2.00 kN/m^2
16. L.L in Lift Machine Room = 10.00 kN/m^2
17. Terrace live load = 1.50 kN/m^2
18. Basic wind speed = 50 m/sec
19. Seismic Zone = Zone III
20. Design mix = M40 for columns & Shear wall and M30 for all other members

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5. ANALYSIS OF STRUCTURE:

Computer-aided analysis using finite element method (FEM) shall be carried out for the Analysis of structure.

Assumptions:

- The structure is idealized as 3D space frame and analyzed using Etabs software package for both vertical and lateral loads.
- The structure is analyzed for specific loads like dead load, live load, wind and seismic loads and for the load combinations as given in the relevant codes.
- Temperature load is applied on the terrace floor of the buildings.

Column : Frame Element
Shear Wall : Wall (Shell) Element
Beam element: Frame Element
Slab element : Membrane Element

For 3D or 2D structural frame analysis ETABS or SAFE software shall be used, verified in-house spreadsheets will be used for the design of reinforced concrete (RC) and steel elements in consideration of flexure, shear and axial forces.
The following are general parameters adopted in the analysis and design,
Consideration of Diaphragm – Semi Rigid Diaphragm.

6. DESIGN CONCEPT

Limit State concept of design will be used as per IS: 456-2000 & SP - 16. The detailing of reinforcement shall be done satisfying the requirements of IS: 456, SP-16, IS: 13920, IS: 4326 and SP-34.

The Slabs and beams are checked for deflection as per IS 456. Cover for Reinforcement is considered as per Table 16A of NBC, for a Fire resistance of **2 hrs.**

7. LOAD CASE

7.1 Primary Load

- Dead Load (DL)
- Live Load (LL)
- Earthquake Load (EL)
- Wind Load (WL)
- Temperature Load (TL)

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7.2 Load Combinations:

The following combinations of Loads as per IS 1893 is considered in the E Tabs Analysis.

1) $1.2\,[DL + IL \pm (EL_X \pm 0.3\,EL_Y \pm 0.3\,EL_Z)]$ and
   $1.2\,[DL + IL \pm (EL_Y \pm 0.3\,EL_X \pm 0.3\,EL_Z)]$;
2) $1.5\,[DL \pm (EL_X \pm 0.3\,EL_Y \pm 0.3\,EL_Z)]$ and
   $1.5\,[DL \pm (EL_Y \pm 0.3\,EL_X \pm 0.3\,EL_Z)]$; and
3) $0.9\,DL \pm 1.5\,(EL_X \pm 0.3\,EL_Y \pm 0.3\,EL_Z)$ and
   $0.9\,DL \pm 1.5\,(EL_Y \pm 0.3\,EL_X \pm 0.3\,EL_Z)$.

[$]This value is to be considered when stability against overturning or stress reversal is critical

DL	-	Dead load
LL	-	Live load
WL	-	Wind load
EL	-	Earthquake load

Wind load and earthquake load shall be considered for both X & Y directions.
The above load combinations will be considered and effect of worst combinations will be taken for design of various building elements.
Whenever imposed load is combined with earthquake load the appropriate part of imposed load as specified in IS: 1893 – 2016 will be used both for evaluating earthquake effect and for combined load effects used in such combination.

RESP Z FUNCTION AS PER IS 1893: 2016

6.4.6 The design seismic acceleration spectral value A_v or vertical motions shall be taken as:

$$\left[\frac{\left(\frac{2}{3}\times\frac{Z}{2}\right)(2.5)}{\left(\frac{R}{I}\right)}\right]$$ For buildings governed by IS 1893 (Part 1)

Z= 0.16 mentioned in etabs function resp
sa/g updated in resp z function
Balance value = I/3R = 1.2/15 =0.08
Multiply= 2.5 * 0.08 = 0.20 in resp z function
Scale factor max of respx , resp y

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General Load Combinations considered in the analysis are as follows:

Combinations considered for the design of the various building elements:									
COMB 1	1.5 DL	+	1.5 LL						
COMB 2	1.2 DL	+	1.2 LL	+	1.2 SPEC X	+	0.36 SPEC Y	+	0.36 SPEC Z
COMB 3	1.2 DL	+	1.2 LL	+	1.2 SPEC X	+	0.36 SPEC Y	-	0.36 SPEC Z
COMB 4	1.2 DL	+	1.2 LL	+	1.2 SPEC X	-	0.36 SPEC Y	+	0.36 SPEC Z
COMB 5	1.2 DL	+	1.2 LL	+	1.2 SPEC X	-	0.36 SPEC Y	-	0.36 SPEC Z
COMB 6	1.2 DL	+	1.2 LL	-	1.2 SPEC X	+	0.36 SPEC Y	+	0.36 SPEC Z
COMB 7	1.2 DL	+	1.2 LL	-	1.2 SPEC X	+	0.36 SPEC Y	-	0.36 SPEC Z
COMB 8	1.2 DL	+	1.2 LL	-	1.2 SPEC X	-	0.36 SPEC Y	+	0.36 SPEC Z
COMB 9	1.2 DL	+	1.2 LL	-	1.2 SPEC X	-	0.36 SPEC Y	-	0.36 SPEC Z
COMB 10	1.2 DL	+	1.2 LL	+	0.36 SPEC X	+	1.2 SPEC Y	+	0.36 SPEC Z
COMB 11	1.2 DL	+	1.2 LL	+	0.36 SPEC X	+	1.2 SPEC Y	-	0.36 SPEC Z
COMB 12	1.2 DL	+	1.2 LL	+	0.36 SPEC X	-	1.2 SPEC Y	+	0.36 SPEC Z
COMB 13	1.2 DL	+	1.2 LL	+	0.36 SPEC X	-	1.2 SPEC Y	-	0.36 SPEC Z
COMB 14	1.2 DL	+	1.2 LL	-	0.36 SPEC X	+	1.2 SPEC Y	+	0.36 SPEC Z
COMB 15	1.2 DL	+	1.2 LL	-	0.36 SPEC X	+	1.2 SPEC Y	-	0.36 SPEC Z
COMB 16	1.2 DL	+	1.2 LL	-	0.36 SPEC X	-	1.2 SPEC Y	+	0.36 SPEC Z
COMB 17	1.2 DL	+	1.2 LL	-	0.36 SPEC X	-	1.2 SPEC Y	-	0.36 SPEC Z
COMB 18	1.5 DL			+	1.5 SPEC X	+	0.45 SPEC Y	+	0.45 SPEC Z
COMB 19	1.5 DL			+	1.5 SPEC X	+	0.45 SPEC Y	-	0.45 SPEC Z
COMB 20	1.5 DL			+	1.5 SPEC X	-	0.45 SPEC Y	+	0.45 SPEC Z
COMB 21	1.5 DL			+	1.5 SPEC X	-	0.45 SPEC Y	-	0.45 SPEC Z
COMB 22	1.5 DL			-	1.5 SPEC X	+	0.45 SPEC Y	+	0.45 SPEC Z
COMB 23	1.5 DL			-	1.5 SPEC X	+	0.45 SPEC Y	-	0.45 SPEC Z
COMB 24	1.5 DL			-	1.5 SPEC X	-	0.45 SPEC Y	+	0.45 SPEC Z
COMB 25	1.5 DL			-	1.5 SPEC X	-	0.45 SPEC Y	-	0.45 SPEC Z
COMB 26	1.5 DL			+	0.45 SPEC X	+	1.5 SPEC Y	+	0.45 SPEC Z
COMB 27	1.5 DL			+	0.45 SPEC X	+	1.5 SPEC Y	-	0.45 SPEC Z
COMB 28	1.5 DL			+	0.45 SPEC X	-	1.5 SPEC Y	+	0.45 SPEC Z
COMB 29	1.5 DL			+	0.45 SPEC X	-	1.5 SPEC Y	-	0.45 SPEC Z
COMB 30	1.5 DL			-	0.45 SPEC X	+	1.5 SPEC Y	+	0.45 SPEC Z
COMB 31	1.5 DL			-	0.45 SPEC X	+	1.5 SPEC Y	-	0.45 SPEC Z
COMB 32	1.5 DL			-	0.45 SPEC X	-	1.5 SPEC Y	+	0.45 SPEC Z
COMB 33	1.5 DL			-	0.45 SPEC X	-	1.5 SPEC Y	-	0.45 SPEC Z
COMB 34	0.9 DL			+	1.5 SPEC X	+	0.45 SPEC Y	+	0.45 SPEC Z
COMB 35	0.9 DL			+	1.5 SPEC X	+	0.45 SPEC Y	-	0.45 SPEC Z

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COMB 36	0.9 DL			+	1.5 SPEC X	-	0.45 SPEC Y	+	0.45 SPEC Z
COMB 37	0.9 DL			+	1.5 SPEC X	-	0.45 SPEC Y	-	0.45 SPEC Z
COMB 38	0.9 DL			-	1.5 SPEC X	+	0.45 SPEC Y	+	0.45 SPEC Z
COMB 39	0.9 DL			-	1.5 SPEC X	+	0.45 SPEC Y	-	0.45 SPEC Z
COMB 40	0.9 DL			-	1.5 SPEC X	-	0.45 SPEC Y	+	0.45 SPEC Z
COMB 41	0.9 DL			-	1.5 SPEC X	-	0.45 SPEC Y	-	0.45 SPEC Z
COMB 42	0.9 DL			+	0.45 SPEC X	+	1.5 SPEC Y	+	0.45 SPEC Z
COMB 43	0.9 DL			+	0.45 SPEC X	+	1.5 SPEC Y	-	0.45 SPEC Z
COMB 44	0.9 DL			+	0.45 SPEC X	-	1.5 SPEC Y	+	0.45 SPEC Z
COMB 45	0.9 DL			+	0.45 SPEC X	-	1.5 SPEC Y	-	0.45 SPEC Z
COMB 46	0.9 DL			-	0.45 SPEC X	+	1.5 SPEC Y	+	0.45 SPEC Z
COMB 47	0.9 DL			-	0.45 SPEC X	+	1.5 SPEC Y	-	0.45 SPEC Z
COMB 48	0.9 DL			-	0.45 SPEC X	-	1.5 SPEC Y	+	0.45 SPEC Z
COMB 49	0.9 DL			-	0.45 SPEC X	-	1.5 SPEC Y	-	0.45 SPEC Z
COMB 50	1.2 DL	+	1.2 LL	+	1.2 WLX				
COMB 51	1.2 DL	+	1.2 LL	-	1.2 WLX				
COMB 52	1.2 DL	+	1.2 LL	+	1.2 WLY				
COMB 53	1.2 DL	+	1.2 LL	-	1.2 WLY				
COMB 54	1.5 DL			+	1.5 WLX				
COMB 55	1.5 DL			-	1.5 WLX				
COMB 56	1.5 DL			+	1.5 WLY				
COMB 57	1.5 DL			-	1.5 WLY				
COMB 58	0.9 DL			+	1.5 WLX				
COMB 59	0.9 DL			-	1.5 WLX				
COMB 60	0.9 DL			+	1.5 WLY				
COMB 61	0.9 DL			-	1.5 WLY				
COMB 61	1.5 DL	+	1.5LL	+	1.5 TL				
COMB 61	1.5 DL			+	1.5 TL				
Un-factored Loads to be taken for foundation design:									
FOUN 1	1.0 DL	+	1.0 LL						
FOUN 2	1.0 DL	+	1.0 LL	+	1.0 SPEC X	+	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 3	1.0 DL	+	1.0 LL	+	1.0 SPEC X	+	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 4	1.0 DL	+	1.0 LL	+	1.0 SPEC X	-	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 5	1.0 DL	+	1.0 LL	+	1.0 SPEC X	-	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 6	1.0 DL	+	1.0 LL	-	1.0 SPEC X	+	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 7	1.0 DL	+	1.0 LL	-	1.0 SPEC X	+	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 8	1.0 DL	+	1.0 LL	-	1.0 SPEC X	-	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 9	1.0 DL	+	1.0 LL	-	1.0 SPEC X	-	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 10	1.0 DL	+	1.0 LL	+	0.3 SPEC X	+	1.0 SPEC Y	+	0.3 SPEC Z

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FOUN 11	1.0 DL	+	1.0 LL	+	0.3 SPEC X	+	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 12	1.0 DL	+	1.0 LL	+	0.3 SPEC X	-	1.0 SPEC Y	+	0.3 SPEC Z
FOUN 13	1.0 DL	+	1.0 LL	+	0.3 SPEC X	-	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 14	1.0 DL	+	1.0 LL	-	0.3 SPEC X	+	1.0 SPEC Y	+	0.3 SPEC Z
FOUN 15	1.0 DL	+	1.0 LL	-	0.3 SPEC X	+	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 16	1.0 DL	+	1.0 LL	-	0.3 SPEC X	-	1.0 SPEC Y	+	0.3 SPEC Z
FOUN 17	1.0 DL	+	1.0 LL	-	0.3 SPEC X	-	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 18	1.0 DL			+	1.0 SPEC X	+	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 19	1.0 DL			+	1.0 SPEC X	+	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 20	1.0 DL			+	1.0 SPEC X	-	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 21	1.0 DL			+	1.0 SPEC X	-	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 22	1.0 DL			-	1.0 SPEC X	+	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 23	1.0 DL			-	1.0 SPEC X	+	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 24	1.0 DL			-	1.0 SPEC X	-	0.3 SPEC Y	+	0.3 SPEC Z
FOUN 25	1.0 DL			-	1.0 SPEC X	-	0.3 SPEC Y	-	0.3 SPEC Z
FOUN 26	1.0 DL			+	0.3 SPEC X	+	1.0 SPEC Y	+	0.3 SPEC Z
FOUN 27	1.0 DL			+	0.3 SPEC X	+	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 28	1.0 DL			+	0.3 SPEC X	-	1.0 SPEC Y	+	0.3 SPEC Z
FOUN 29	1.0 DL			+	0.3 SPEC X	-	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 30	1.0 DL			-	0.3 SPEC X	+	1.0 SPEC Y	+	0.3 SPEC Z
FOUN 31	1.0 DL			-	0.3 SPEC X	+	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 32	1.0 DL			-	0.3 SPEC X	-	1.0 SPEC Y	+	0.3 SPEC Z
FOUN 33	1.0 DL			-	0.3 SPEC X	-	1.0 SPEC Y	-	0.3 SPEC Z
FOUN 34	1.0 DL	+	1.0 LL	+	WLX				
FOUN 35	1.0 DL	+	1.0 LL	-	WLX				
FOUN 36	1.0 DL	+	1.0 LL	+	WLY				
FOUN 37	1.0 DL	+	1.0 LL	-	WLY				
FOUN 38	1.0 DL			+	WLX				
FOUN 39	1.0 DL			-	WLX				
FOUN 40	1.0 DL			+	WLY				
FOUN 41	1.0 DL			-	WLY				
FOUN 42	1.0 DL	+	1.0LL	+	1.0TL				
FOUN 43	1.0 DL			+	1.0TL				

8. WIND LOAD:

Wind loads and pressures are calculated based on the static design wind pressure. This pressure has been considered for the load analysis and applied to the model. The wind pressure shall be calculated based on the data furnished below and other provisions laid in IS: 875 (Part 3) – 2015.

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The design wind velocity at any given height and at a given site is given by,

$Vz = V_b\ k_1 k_2\ k_3\ k_4$

where,

V_b- basic wind speed in m/s at 42m height

k_1 - probability or risk factor

k_2 - terrain, height and structure size factor

k_3 - local topography factor

Basic wind speed for Chennai	= 50 m/sec
Risk coefficient, k_1	= 1.0
Terrain category	= 2
Height factor- k_2	= Varies with height
Terrain, size height & structure factor, k_2 up to 42 m height (as per Cl. 6.3.2 of IS 875 Part 3 - 2015)	= 1.15
Topography factor k_3 as per Cl. 6.3.3 of IS 875 Part 3 - 2015)	= 1.0
k_4 – Importance factor for Cyclone Region (As per cl.6.3.4 of IS875 part 3 - 2015)	= 1.0 (Other buildings)
Design wind speed at any height z, V_z	= 50×1.0×1.15×1×1
	= 57.5 m/sec

The design wind pressure, Pz in MPa at any height above mean ground level is given by,

p_z	$= 0.6\ V_z^2$
	$= 0.6 \times 57.5^2$
	$= 1983.75\ N/m^2$
p_z	$= 1.984\ kN/m^2$

$p_d = K_d \times K_a \times K_c \times p_z$ where, as per IS875 PART 3 - 2015

K_d - wind directionality factor	= 1.0
K_a - area averaging factor	= 0.9
K_c - combination factor	= 0.9
Therefore, p_d= 1.0 x 0.9 x 0.9 x 1.984	$= 1.607\ kN/m^2$

The wind pressure of 1.607 kN/m^2 is applied along the height of the column.

The structure has been examined for problems of wind-induced oscillations as per IS875

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a) Buildings and closed structures with a height to minimum lateral dimension ratio of more than about 5.0, or
b) Buildings and structures whose natural frequency in the first mode is less than 1.0 Hz.

Its frequency is less than 1.0, so Dynamic analysis required.

9. SEISMIC LOAD:

The Proposed Multi storied building at Chennai falls under Zone III as per the IS Code. Response spectrum method shall be used, for seismic analysis of R.C. Frames as recommended by IS: 1893-2016

Seismic Zone	=Zone III
Zone Factor 'Z'	=0.16
Response Reduction Factor 'R' (for SMRF)	=5.00
Importance Factor 'I'	=1.20
Type of Structure	=1.00

SEISMIC ANALYSIS:

9.1. STATIC ANALYSIS:

Design of lateral force under seismic condition shall be as per IS1893 – 2016. Total lateral force (base shear) of the building shall be estimated as per clause 7.2.1 of IS1893 – 2016 which provides by

$$V_b = A_h W$$

Ah is horizontal seismic coefficient and W is seismic weight of the building, Horizontal seismic coefficient depends on location of the building (Zone factor Z), usage of the building (Importance factor, I), building lateral resisting system (Response reduction factor, R) and design acceleration coefficient (Sa /g) which is based on subsoil condition and fundamental natural period (Ta).

For the proposed development is for commercial use. Considering it, the seismic weight is summation of total dead load and 50% of live load where live load is greater than 3 KN/sq.m, 25% for live load equal or lesser than 3 KN/sq.m.

From IS 1893:2016 clause 6.4.2, Design horizontal seismic coefficient

$$Ah = \frac{Z\ I\ Sa}{2\ R\ g}$$

Where, Z for Zone III	= 0.16
Importance factor	= 1.2
R for SMRF	= 5.0

i. T = 0.09 h / √d (Refer IS 1893 - 2016 clause 7.6.2c),
ii. T = (0.075 h0.75) / (√Aw) (Refer IS 1893 - 2016 clause 7.6.2b) ,
iii. T = (0.075 h0.75) (Refer IS 1893 - 2016 clause 7.6.2a);

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The time period has been calculated for all above specified cases and it ensured that the case (ii) time period is not greater than case (iii) and not lesser than case-(i).Where,

T is Fundamental natural period

For the building height with reference to IS: 1893-2016 the building is well connected with basement wall in all four sides, so for the time period calculation the heights are considered as follows,

h = Height of the structure from Stilt Floor to Roof.

d = Width of the building along the direction of lateral force.

Aw = Total effective wall area in square meter

9.2. DYNAMIC ANALYSIS:

Response spectrum method of Dynamic Analysis carried out with following parameters pertaining to dynamic analysis.

Number of modes Considered	: 12 Numbers (Minimum)
Modal Combination Method Used	: Complete Quadratic combination (CQC).
Directional Combination Method used	: Square root of the sum of Square (SRSS).
Modal case type	: Eigen vector Method

10. COVER FOR REINFORCEMENT:

Cover for Reinforcement is considered as per Table 16A of NBC, for a Fire resistance of **2 hrs.**

Columns	= 40 mm
Beams	= 30 mm
Slabs	= 25 mm
Shear wall	= 25 mm

11. EXPANSION JOINT:

The temperature load is taken in the analysis and design. Hence Expansion joint is not provided.

12. CONSTRUCTION JOINT:

Construction joints and shrinkage strips will be planned with the contractor and only be used in locations pre-approved by consultants.

1) No construction joint is allowed in the sunken portion.
2) Preferred at l/3 from support.
3) Construction joint shall be placed at accessible location for maintenance purpose.
4) Joints are common source of weakness, therefore it is desirable to avoid or at least minimize the same.

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13. FOUNDATION SYSTEM:

As per MARS SYNERGY GEOTECH

For Block-A

Bored Cast In-situ Pile Capacities as per IS-2911 Part-1/sec-2:2010					
Pile Termination Depth (m)	Pile Dia (mm)	Safe Vertical Capacity (Tones)	Safe Uplift Capacity (Tones)	Safe lateral Capacity with 5mm deflection	
				Free Head (Tones)	Fixed Head (Tones)
28	600	125	75	3.1	8.0
	750	200	100	4.4	11.4
	900	280	130	6.0	15.3

We have taken 600mm dia pile of 125 T Capacity with 28m deep from GL, with reference to the above soil report. It is proposed to have pile and pile cap to resist floor loads.

The support condition for columns in ETABS model is considered as fixed support.

Allowable Vertical settlement of Pile = 12mm

Allowable Horizontal displacement of Pile = 5mm

1.6 GROUND WATER TABLE

Determination of Ground water Table from Existing Ground level was done using Steel tape with weight. The depth of Ground water table was determined as per procedure laid in IS 6935-1973. At the time of Soil Investigation (13/06/2025 to 16/06/2025) at site, ground water table was at a depth of **(-)4.0m** which is encountered within the investigated depth from existing ground level.

For Block - B

For 3 Storied Building (Ground + 2 floors) – BH-4

Shallow Foundation

- The proposed structure is a three-storied Residential building (Ground+2 floors).
- It is recommended to adopt an open shallow foundation in the form of isolated or strip raft, placed at a depth of 2.0 m below existing ground level.
- Excavate up to 2.0m after excavation thorough compaction shall be done. After thorough compaction adopt the isolated/strip raft as per column loads.
- **A safe bearing capacity of soil is 20 T/m² at 2.0 m depth below existing ground level.**
- Footing/strip raft shall be rest on 100mm thick PCC (1:4:8)

We have taken Safe bearing capacity of soil is 20 T/m^2 at 2.0m depth below existing ground level with reference to the above soil report. It is proposed to have isolated footing to resist floor loads.

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14. FLOOR LOADING

a) FIRST FLOOR SLABS LOAD:

The floor slab and beams are designed as conventional R.C. beam & slab members for floor loads as mentioned below. Thickness of slab is 150mm for 3.9m x 4.9m panels. The load Considered on the floor slab is 9.95kN/m^2.

RC Conventional Slab:

Self-Weight of 150 thk. slab	= 3.75 kN/m^2
Load due to Floor Finish	= 1.20 kN/m^2
Live load	= 5.00 kN/m^2

b) TYPICAL FLOOR SLABS LOAD:

The floor slab and beams are designed as conventional R.C. beam & slab members for floor loads as mentioned below. Thickness of slab is 130mm for 3.5m x 4.9m panels. The load Considered on the floor slab is 7.95kN/m^2

Self-Weight of 150 thk. slab	= 3.25 kN/m^2
Load due to Floor Finish	= 1.20 kN/m^2
Load due to Partition load	= 1.50 kN/m^2
Live load	= 2.00 kN/m^2

c) TEMPERATURE LOAD:

We have avoided expansion joint and forces due to Temperature Load as per IS Code has been considered in the design of the structure.
The seasonal variation in temperature, though more than its daily variation, is not important for structural design, as its effect get insignificance, on account of creep. Effect of overall temperature changes shall be taken as per IS:875-1987(Part-5)
For Chennai city,
Highest maximum temperature= 45 ^{0}C (Fig-1, from IS:875)
Lowest minimum temperature =*12.5* ^{0}C (Fig-2,from IS:875)
Total variation of temperature= 45-12.5= 32.5 ^{0}C
Mean variation of temperature= 32.5/2= 16.25 ^{0}C

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15. SERVICEABILITY CHECK:

a. For Deflections:

The final deflection due to all loads including the effect of temperature, creep and shrinkage and measured from the as-cast level of the supports of floors, roofs and all other horizontal members should not normally exceed span / 250.

The deflection including the effect of temperature, creep and shrinkage occurring after the erection of partitions and the application of finishes should not normally exceed Span / 350 or 20 mm whichever is less.

b. Lateral drift :

Under transient wind load the lateral sway at the top should not exceed H/500, where H is the total height of the building.

The storey drift in any storey due to the minimum specified design lateral force, with partial load factor of 1, shall not exceed 0.004 times the storey height.

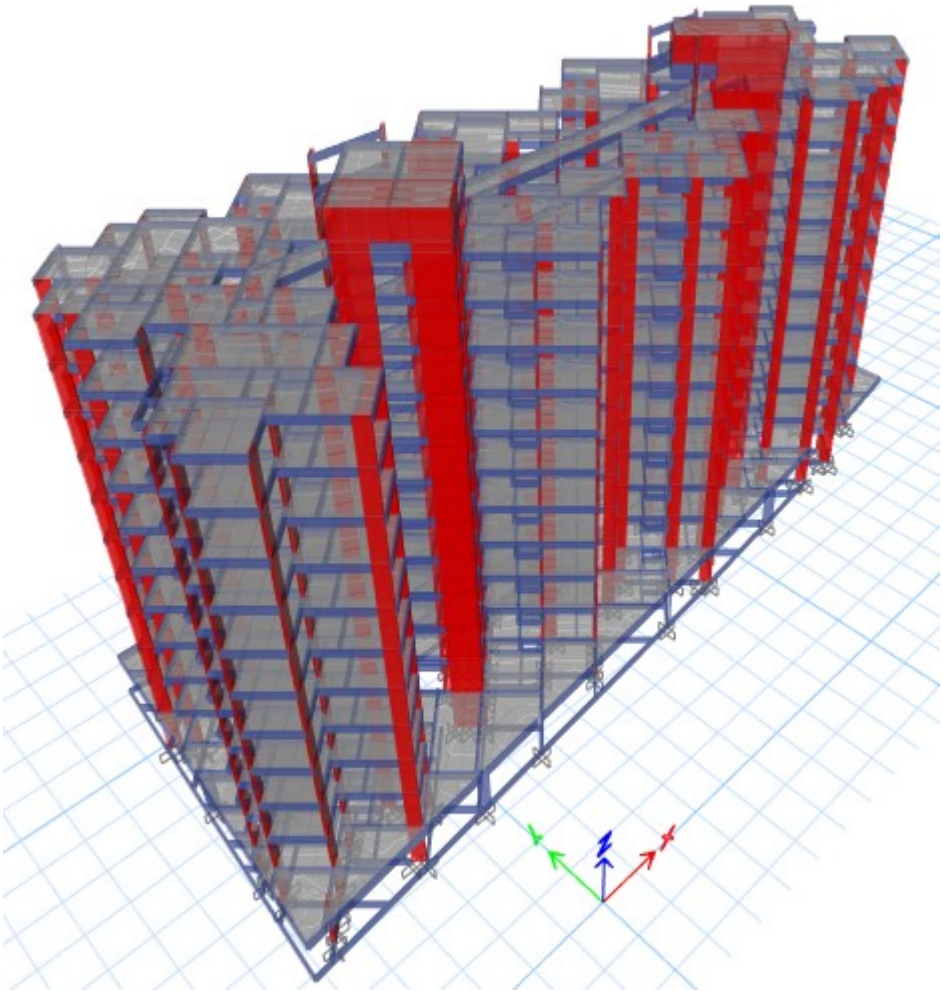
c. For Cracking

Surface crack width shall not exceed 0.3 mm in general and for water retaining structure it is limited to 0.2 mm.

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16. Etabs 3D view & Results:

Etabs model – 3D view



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Mass Participation check:

X principal plan first three mass participation

0.53 < 0.65 Not Okay

Y principal plan first three mass participation

0.50 < 0.65 Not Okay

The structure has plan irregularity; so, we have to consider effects of vertical earthquake shaking as per IS 1893-2016: cl-6.3.3.1, i.e. Combinations to Account for three Directional earthquake ground shaking.

Case	Mode	Period	UX	UY	UZ	SumUX	SumUY	RX	RY	RZ	SumRX	SumRY	SumRZ
		sec											
Modal	1	1.966	0.28	0.43	0.00	0.276	0.434	0.16	0.03	0.002	0.16	0.028	0.002
Modal	2	1.765	0.01	0.00	0.00	0.290	0.436	0.00	0.00	0.665	0.16	0.029	0.667
Modal	3	1.443	0.41	0.25	0.00	0.698	0.689	0.12	0.05	0.014	0.28	0.077	0.681
Modal	4	0.605	0.05	0.07	0.00	0.744	0.756	0.13	0.03	0.000	0.40	0.109	0.681
Modal	5	0.512	0.00	0.00	0.00	0.746	0.757	0.00	0.00	0.127	0.40	0.109	0.808
Modal	6	0.448	0.00	0.00	0.00	0.748	0.757	0.00	0.00	0.002	0.40	0.110	0.809
Modal	7	0.393	0.00	0.00	0.00	0.748	0.757	0.00	0.00	0.000	0.40	0.110	0.809
Modal	8	0.39	0.07	0.06	0.00	0.816	0.816	0.07	0.03	0.004	0.47	0.139	0.813
Modal	9	0.335	0.02	0.00	0.00	0.837	0.816	0.00	0.01	0.002	0.48	0.144	0.814
Modal	10	0.319	0.01	0.03	0.00	0.847	0.850	0.03	0.00	0.000	0.51	0.146	0.815
Modal	11	0.281	0.00	0.00	0.00	0.847	0.850	0.00	0.00	0.034	0.51	0.146	0.848
Modal	12	0.251	0.00	0.00	0.00	0.848	0.852	0.00	0.00	0.006	0.51	0.146	0.854
Modal	13	0.248	0.00	0.00	0.00	0.848	0.852	0.00	0.00	0.000	0.51	0.146	0.854
Modal	14	0.229	0.00	0.00	0.00	0.849	0.854	0.00	0.00	0.000	0.51	0.146	0.855
Modal	15	0.226	0.00	0.00	0.00	0.849	0.858	0.01	0.00	0.015	0.52	0.147	0.869
Modal	16	0.212	0.02	0.00	0.00	0.870	0.862	0.01	0.01	0.001	0.53	0.155	0.870
Modal	17	0.195	0.00	0.00	0.00	0.871	0.862	0.00	0.00	0.000	0.53	0.155	0.870
Modal	18	0.184	0.01	0.03	0.00	0.884	0.892	0.03	0.00	0.001	0.56	0.157	0.871
Modal	19	0.177	0.00	0.00	0.00	0.884	0.894	0.00	0.00	0.017	0.56	0.157	0.888
Modal	20	0.175	0.00	0.00	0.00	0.884	0.894	0.00	0.00	0.000	0.56	0.157	0.888
Modal	21	0.175	0.00	0.00	0.00	0.884	0.894	0.00	0.00	0.003	0.56	0.158	0.891
Modal	22	0.17	0.00	0.00	0.00	0.884	0.894	0.00	0.01	0.000	0.56	0.165	0.892
Modal	23	0.168	0.00	0.00	0.00	0.885	0.897	0.00	0.00	0.001	0.56	0.165	0.893
Modal	24	0.166	0.01	0.00	0.00	0.890	0.897	0.00	0.00	0.003	0.56	0.166	0.895
Modal	25	0.166	0.00	0.00	0.00	0.894	0.897	0.00	0.00	0.002	0.57	0.168	0.897
Modal	26	0.164	0.00	0.00	0.00	0.894	0.897	0.00	0.00	0.000	0.57	0.168	0.897
Modal	27	0.161	0.00	0.00	0.00	0.894	0.897	0.00	0.00	0.000	0.57	0.168	0.897

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Modal	28	0.16	0.00	0.00	0.00	0.894	0.897	0.00	0.00	0.000	0.57	0.168	0.897
Modal	29	0.16	0.00	0.00	0.00	0.894	0.898	0.00	0.00	0.000	0.57	0.168	0.897
Modal	30	0.159	0.00	0.00	0.00	0.894	0.898	0.00	0.00	0.000	0.57	0.168	0.897
Modal	31	0.159	0.00	0.00	0.00	0.894	0.898	0.00	0.00	0.000	0.57	0.169	0.897
Modal	32	0.158	0.00	0.00	0.00	0.894	0.898	0.00	0.00	0.000	0.57	0.169	0.897
Modal	33	0.158	0.00	0.00	0.00	0.894	0.898	0.00	0.00	0.000	0.57	0.169	0.897
Modal	34	0.157	0.00	0.00	0.00	0.897	0.898	0.00	0.00	0.000	0.57	0.170	0.897
Modal	35	0.157	0.00	0.00	0.00	0.898	0.898	0.00	0.00	0.000	0.57	0.170	0.898
Modal	36	0.156	0.00	0.00	0.00	0.898	0.898	0.00	0.00	0.000	0.57	0.171	0.898
Modal	37	0.156	0.00	0.00	0.00	0.898	0.898	0.00	0.00	0.000	0.57	0.171	0.898
Modal	38	0.152	0.00	0.00	0.00	0.899	0.899	0.00	0.00	0.003	0.57	0.172	0.901
Modal	39	0.15	0.00	0.00	0.00	0.902	0.899	0.00	0.00	0.002	0.57	0.176	0.903
Modal	40	0.149	0.00	0.00	0.00	0.902	0.899	0.00	0.01	0.000	0.57	0.182	0.903
Modal	41	0.149	0.00	0.00	0.00	0.902	0.899	0.00	0.00	0.000	0.57	0.183	0.903
Modal	42	0.149	0.00	0.00	0.01	0.902	0.899	0.00	0.01	0.000	0.58	0.195	0.903
Modal	43	0.148	0.00	0.00	0.00	0.902	0.899	0.00	0.00	0.000	0.58	0.195	0.903
Modal	44	0.147	0.00	0.00	0.06	0.902	0.899	0.00	0.00	0.000	0.58	0.197	0.903
Modal	45	0.145	0.00	0.00	0.03	0.902	0.899	0.01	0.03	0.000	0.59	0.227	0.903
Modal	46	0.138	0.00	0.00	0.00	0.902	0.899	0.00	0.00	0.000	0.59	0.227	0.903
Modal	47	0.138	0.00	0.00	0.06	0.902	0.900	0.00	0.04	0.000	0.59	0.266	0.903
Modal	48	0.138	0.00	0.00	0.10	0.903	0.903	0.02	0.03	0.000	0.60	0.299	0.903
Modal	49	0.137	0.00	0.00	0.01	0.903	0.903	0.01	0.00	0.000	0.61	0.299	0.903
Modal	50	0.135	0.00	0.00	0.07	0.904	0.905	0.00	0.02	0.000	0.62	0.320	0.903

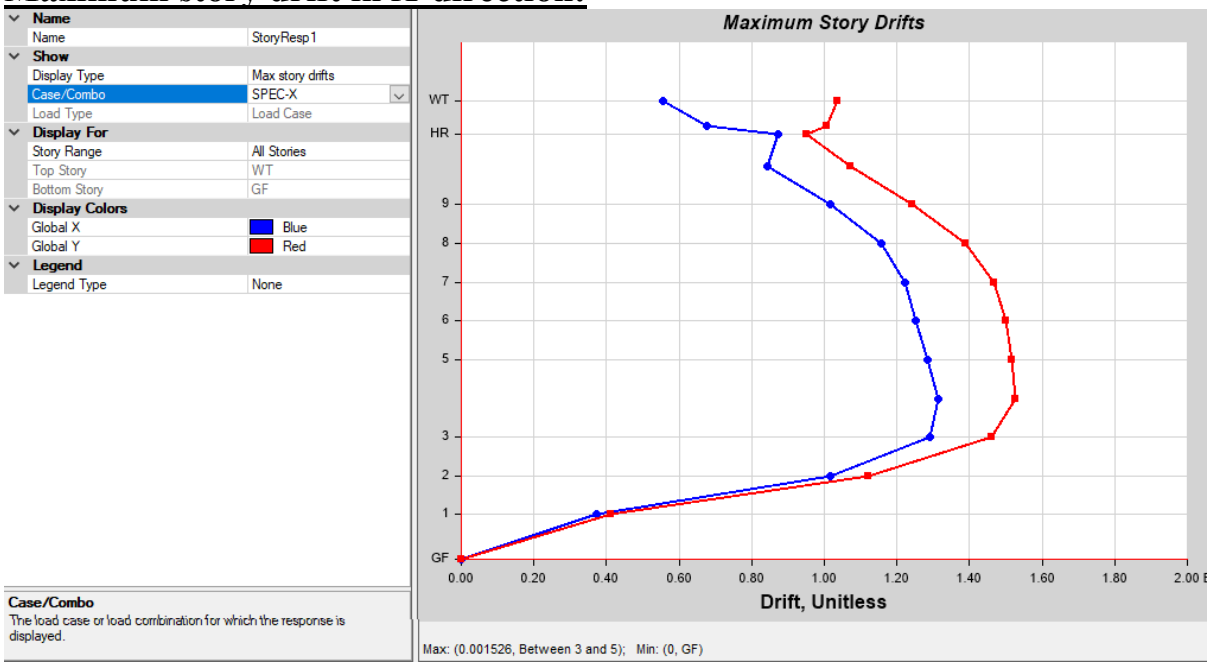
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Story stiffness check:

Story	Output Case	Case Type	Shear X kN	Drift X mm	Stiff X kN/m	Shear Y kN	Drift Y mm	Stiff Y kN/m	Soft Story Check
TERR	SPEC-X	LinRespSpec	837.2815	2.4	348822.53	894.9417	2.858	313096.385	
10	SPEC-X	LinRespSpec	1309.0024	2.844	460333.02	1264.9648	3.293	384154.372	**No Soft Story**
9	SPEC-X	LinRespSpec	1624.9167	3.247	500372.985	1436.5393	3.629	395840.132	**No Soft Story**
8	SPEC-X	LinRespSpec	1827.5589	3.513	520166.873	1538.2271	3.848	399720.015	**No Soft Story**
7	SPEC-X	LinRespSpec	1979.4995	3.684	537329.936	1641.2367	3.992	411140.705	**No Soft Story**
6	SPEC-X	LinRespSpec	2139.9889	3.808	561914.04	1761.2066	4.076	432110.028	**No Soft Story**
5	SPEC-X	LinRespSpec	2335.5944	3.895	599630.503	1922.4373	4.113	467425.577	**No Soft Story**
4	SPEC-X	LinRespSpec	2563.5802	3.903	656819.203	2118.6149	4.063	521387.606	**No Soft Story**
3	SPEC-X	LinRespSpec	2829.6543	3.725	759716.137	2304.941	3.783	609264.348	**No Soft Story**
2	SPEC-X	LinRespSpec	3075.9152	2.884	1066538.69	2440.0195	2.876	848441.282	**No Soft Story**
1	SPEC-X	LinRespSpec	3231.6329	1.259	2567047.98	2516.8258	1.233	2040733.92	**No Soft Story**
TERR	SPEC-Y	LinRespSpec	980.6306	2.488	394070.392	841.1331	3.411	246597.935	
10	SPEC-Y	LinRespSpec	1407.2623	2.936	479342.649	1308.6621	3.958	330651.638	**No Soft Story**
9	SPEC-Y	LinRespSpec	1580.5546	3.338	473562.851	1610.3919	4.496	358173.515	**No Soft Story**
8	SPEC-Y	LinRespSpec	1677.087	3.603	465460.478	1800.1959	4.887	368345.261	**No Soft Story**
7	SPEC-Y	LinRespSpec	1785.497	3.784	471845.424	1949.0897	5.156	378011.601	**No Soft Story**
6	SPEC-Y	LinRespSpec	1902.7391	3.912	486425.41	2112.8983	5.34	395668.281	**No Soft Story**
5	SPEC-Y	LinRespSpec	2058.3277	4.012	513066.304	2299.772	5.445	422399.297	**No Soft Story**
4	SPEC-Y	LinRespSpec	2271.1543	4.072	557698.148	2518.4772	5.414	465173.429	**No Soft Story**
3	SPEC-Y	LinRespSpec	2492.5067	3.929	634357.332	2801.1928	5.062	553358.333	**No Soft Story**
2	SPEC-Y	LinRespSpec	2651.7193	3.057	867315.927	3073.704	3.865	795322.196	**No Soft Story**
1	SPEC-Y	LinRespSpec	2736.5931	1.308	2092978.1	3245.6453	1.665	1949865.7	**No Soft Story**

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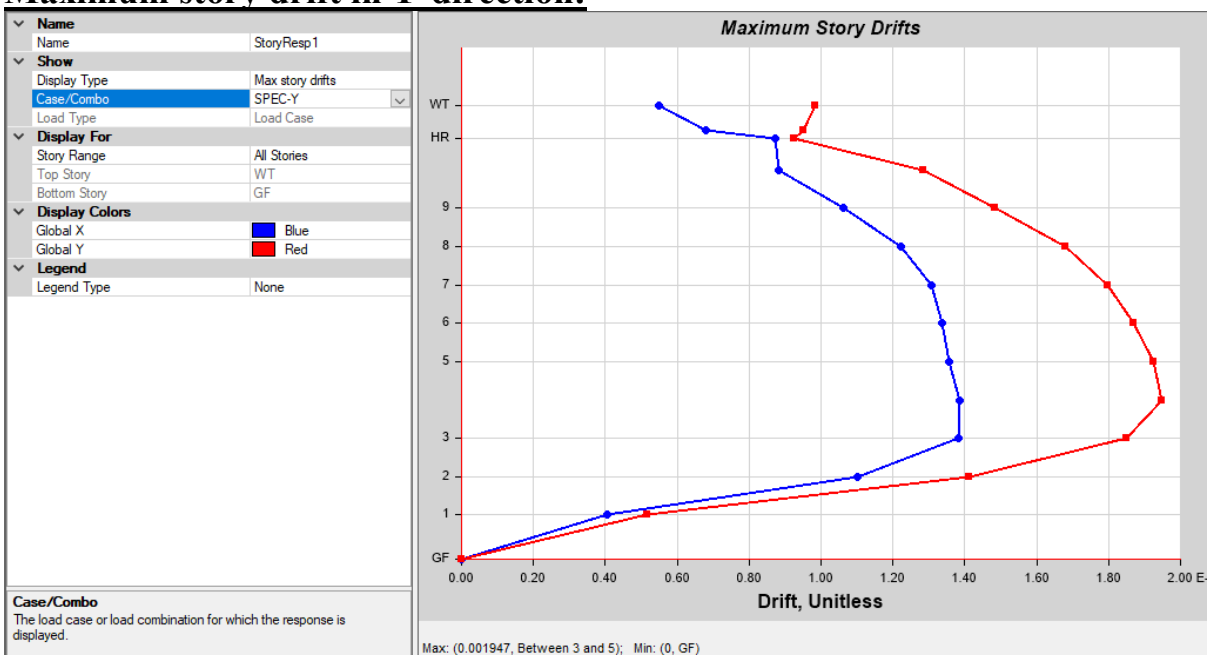
Maximum story drift in X-direction:



Allowable story Drift = 0.004 x 3 = 0.012

Actual story Drift = 0.001526 < 0.012, **Hence safe**

Maximum story drift in Y-direction:

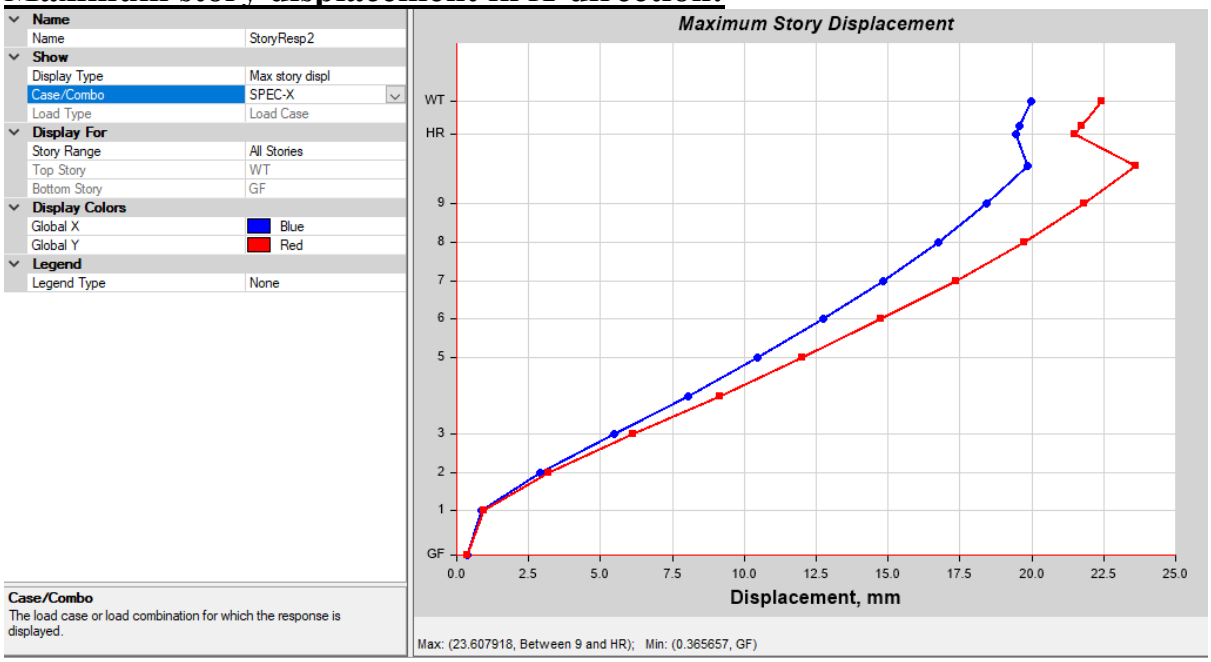


Allowable story Drift = 0.004 x 3 = 0.012

Actual story Drift = 0.0019 < 0.012, **Hence safe**

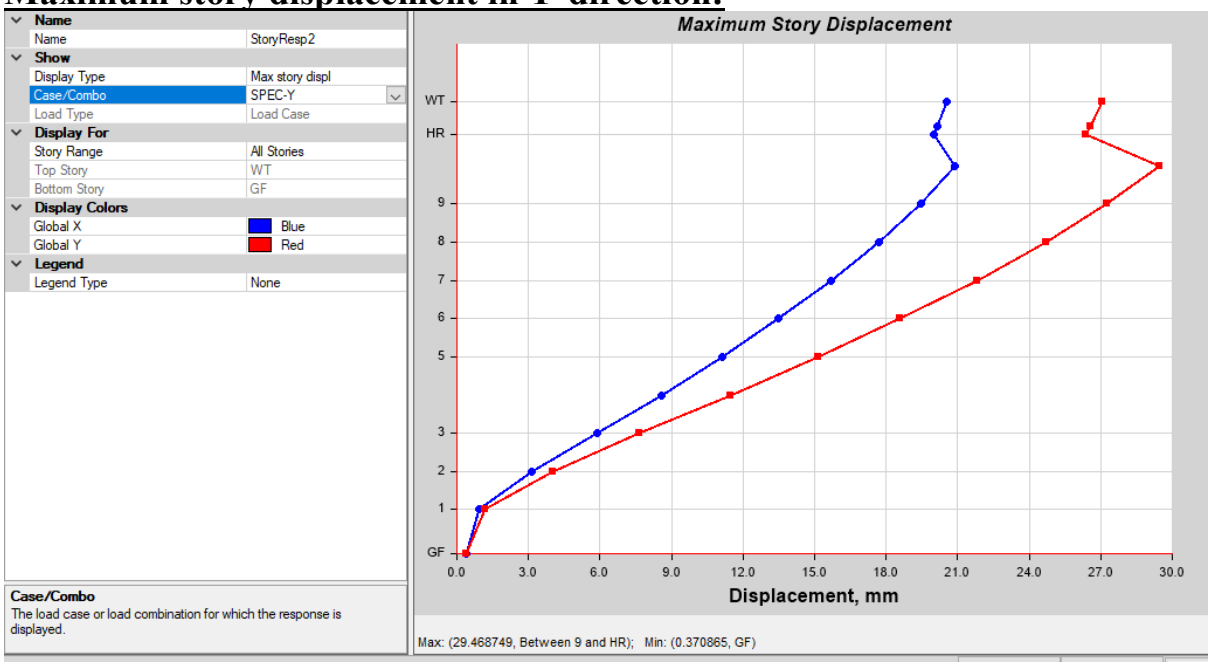
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Maximum story displacement in X-direction:



Allowable Displacement = 0.004 x 33.45m = 0.134m = 134mm
Actual Displacement = 23.61mm < 134mm, **Hence safe**.

Maximum story displacement in Y-direction:



Allowable Displacement = 0.004 x 33.45m = 0.134m = 134mm > 44.23mm
Actual Displacement = 29.47mm < 134mm, **Hence safe**

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Seismic Base shear check:

Output	Case	FX	FY	FZ	MX	MY	MZ
Case	Type	kN	kN	kN	kN-m	kN-m	kN-m
Dead	LinStatic	0	0	67531.71	1514273	-1165999	0
Live	LinStatic	0	0	19035.3	427995.3	-330460	0
SIDL	LinStatic	0	0	51328.8	1153722	-913902	0
EQX	LinStatic	-2086.04	0	0	1.19E-06	-49221.6	47055.68
EQY	LinStatic	0	-2086.04	0	49221.64	-6.1E-07	-36839.1
SPEC-X	LinRespSpec	2086.043	1644.918	107.4921	31368.65	37790.56	64413.27
SPEC-Y	LinRespSpec	1768.781	2086.043	79.8039	36601.97	33077.05	58835.39

Mass	=	**123619.3**	kN		
Minimum base shear	=	1.1	%	**1359.813**	kN

ActualBase Shear X	2086.043	>	1359.813	**Okay**
ActualBase Shear Y	2086.043	>	1359.813	**Okay**

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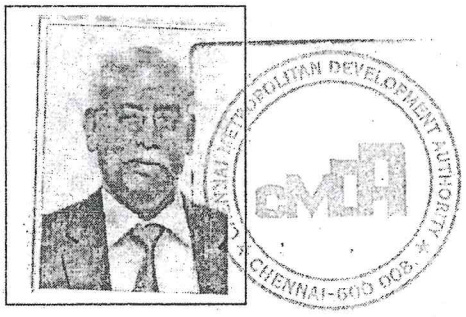
CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY
'ThalamuthuNatarajan Building', No.1, Gandhi Irwin Road,
Egmore, Chennai-600 008.

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that the **Thiru. S. DHILIPRAJAN** has enrolled as **Registered Structural Engineer Grade-I (SE)** with Chennai Metropolitan Development Authority (CMDA) who has the qualification of **M.E.,(Civil Engg.)** and experience in the relevant field for **40years**.

He has been given the Registration No.**SE/GR-I/19/02/011** on **27.02.2024.** He shall be required to comply with the duties and responsibilities prescribed by the Government of Tamil Nadu in Part-V, "Registration of Professionals", Tamil Nadu Combined Development and Building Rules, 2019 approved vide G.O.(Ms) No.18 MAWS (MA1) Dept. dated 04.02.2019.

This Registration is valid upto **26.02.2029**.



27/2/24

(A. MEGANATHAN)
Superintendent

Self Attested
S. Dhili

S.DHILIPARAJAN, M.E.,
CMDA Regn. No. SE/GR-I/19/02/11
GCC Regn. No. RSE100042024
Jehovahking Engineering Consultants Pvt Ltd.,
Second Floor, Plot No. 49/A, New No. 3/1,
6th Cross Street, Lakshmi Nagar, Porur, Chennai-600116.
Mob: 9444024764, Mail: jkc_chennai@yahoo.co.in

THE LANDLENS SUITE

Eight ways to know a piece of land before you pay for it.

This report covers one part of the picture. These cover the rest, drawn from the same government records, for any property in Tamil Nadu.

LandLens One
Ask anything about a property and get an answer grounded in live government records, with the sources shown.
/landlens/one

Verify My Land
Every record check run on one property and returned as a single report.
/landlens/verify-my-land

Legal Opinion
An advocate's written opinion on the title, built on the records we pull for it.
/landlens

One Map
Every layer on one map: the parcel, its boundary, zoning, water bodies and what sits around it.
/landlens/one/map

PriceMap
What land actually changed hands for around this plot, taken from the registered deeds.
/landlens/pricemap

Build Scope
What you are allowed to build here: floor space, height, coverage and setbacks.
/landlens/build-scope

Property Tracker
Watch a property and hear about it when something new is registered against it.
/landlens/property-tracker

Deal Room
Run the transaction in one place: documents, stamping, signatures and the parties.
/landlens/deal-room

FREE TOOLS · NO ACCOUNT NEEDED

Twenty-four checks you can run yourself, at no cost.

Records and verification

The registers themselves, read for you.

- Encumbrance Certificate
- Patta and Chitta
- Field Measurement Sketch
- EC Analyzer
- Bank charge check
- Court case search
- Seller background check
- Approval check by survey

Value and duty

What it is worth and what it costs to register.

- Guideline value by street
- Guideline value by survey
- Stamp duty and registration fees
- Capital gains
- Floor space index
- Area unit converter

Zoning and land use

What the plan says can happen on this land.

- Land use zone finder
- CMDA land use check
- Coastal regulation zone
- Master plan check
- Water bodies finder
- Airport height clearance

Registers and directories

Who holds it, and which office keeps the record.

- Find your registering office
- Temple property check
- Waqf property check
- RERA register

Every free tool
/tools

Services we run for you
/services

The LandLens suite
/landlens/one

Verified RealEstate™

Every claim in this document traces back to a government record.

- Legal opinions, due diligence and title verification
- Building plan, layout and sub-division approvals
- Completion and occupancy certificates, regularisation
- Escrow, negotiation and NRI property management
- Land survey, soil testing, architecture and construction

Verified RealEstate
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OMR Thoraipakkam,
Chennai 600 097, India
hello@verified.realestate
+91 9996 12 9996

Prepared from the registers named on the page each finding sits on. Where a register could not be read, this document says so in its place rather than leaving the gap to be read as a clean result.